National Institute of Environmental Health Sciences

Chapter 4. Recent epidemiology of tick-borne encephalitis an effect of climate change?

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Abstract:

Consideration is given to the opinion of some specialists that the rise in tick-borne encephalitis (TBE) morbidity at the turn of the century has been accounted for by new features of TBE epidemiology as well as by global climate change. It is shown that neither the reputed current expansion of the ranges of main TBE vectors, the taiga (Ixodes persulcatus) and sheep (Ixodes ricinus) ticks, nor the significant rise of their abundance and TBE virus prevalence in them are confirmed by any objective data. The concept of recent tick expansion to large cities and human TBE infection in newly formed urban foci disagrees with the facts repeatedly described during the past four decades. There is no reliable information on the expansion of TBE nosological range. The influence of newly formed anthropurgic foci and of changes in the contribution of city dwellers to the general morbidity structure on the current epidemiological situation is estimated. As in the case of any other zoonosis with natural focality, the level of epidemiological manifestation of TBE foci is determined by two main parameters: the intensity of virus circulation in the foci (i.e., their loimopotential) and the frequency of human contact with them. Attention is paid to the character of interaction between these two factors, which accounted for a major outbreak of TBE morbidity at the end of the twentieth century, followed by a long-term decrease in its level.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Urban, Other Geographical Feature

Other Geographical Feature : forest

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Tick-borne Disease

Tick-borne Disease: Tick-borne Encephalitis

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type: ☑

format or standard characteristic of resource

Review

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content